Work Orde November-08-12				*92	795*								Page 1
Item ID: Revision ID:	D212-664-10)1		Accept	*N9	nn	040	100)*	Setup	Start	*N:	S1*
Item Name:	Crosstube Fwo	d High									Stop	*N:	S2*
Start Date: Required Date:	11/08/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*			Item I	D:						
	Falcon return		"1"		Cust	omer.				-	64 4		
Approvals:	Process Pla	in:	Date:	Tooling: SPC (Y/N):			ite:			Run	Start Stop	"IV	R1* R2*
Sequence ID/ Work Center II)	Operation Description		Set Up/ Run Hours	То	ol ID	Tool#	Plan Code	Accept Qty	Re Qt	-	Reject Number	Insp. Stamp
Draw Nbr	Rev	ision Nbr					N M						
D212-664-141	Rev	D (DEO)											
250		QC4- 100% Inspect kits	for completeness	0.00									
250 QC Quality Control		Memo inspect Falo D212-664-		0.00		J			A			<u> </u>	
270		scrap tube QC21- Final Inspection	- Work Order Release	10 Ke 9	icen	Je	erg.			ク	11.0	8	
270		Memo		0.00						-			

Quality Control

W12.11.09

										DQA:	Date	:
NCR: Y	es / No				WORK ORDER NON-	-CON	FORN	MANCE / UPI		QA Closed:	Date	:
Work Orde	r:	<u> </u>			DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part No. NCR No.					Rework Scrap Use-as-is Work Order Update		Machining Small Fall Thermoforming Finishin		Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root Cause	Date	Step	Qty		iption of work order update or Non-conformance	1	itial ef Eng	Act Descr	ion iption	Sign & Date	Verification	QC Inspector
oc/Data quip/Tooling Operator Material Setup Other Process Supplier Training Unapproved												
						FAULT	CATE	GORY				
Landin					General					1		7- /- /-
- - - - - - - - -	Bending Centre N Cracks Crushed/ Cuffs Heat Trea Inspectio Ripples in	Crimped at n Strip in n Bend	Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		nstruct Mainte Mislabe Misreac Offset	on Incomplete ions Incomplete/U enance eled	Jnclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
1	Turning S	equence			Finish	c	Out of 9	Sequence				

Outside Dimensions

Wave/Twist in Tube

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

November-08-12 11:45:31 AM

Work Order ID:

92795

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd High

Start Date: 11/08/12

Required Date: 11/08/12

Start Qty: 1.00

Required Qty: 1.00

& Comments:

IPP Rev:E04.02.16ReformatKJ/DS

IPP Rev:F 06-03-29 I

Remove Coments on Pick List JLM

As per Rev C

IPP Rev:G 07-04-30

JLM

IPP Rev:H 11.04.26 inspection

strip ecn 11	-549	EC	verified	by:DD
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Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-101		Manufactured	No				Each	7.0000	·	1			
Crosstube Fwd High											= ~- ~ ~		
				Location		Loc Qty	<u>La</u>	oc Code					
				FG		3							
				86982	2	1							
				88432	2	1							
				88433	3	1							
				FG103		3		.1.1					
				89269)	1	///	A(C					
				90580)	1	7						
				9245	1)	1	1						
				Return2012		1							
				6735		1							

NCR:	⁄es	/ No				WORK ORDER NON-C	100	NFOR	MANCE / UPD	DATE	QA Closed	: Da	ate:	
Work Orde	er: .					DISPOSITION	ī		Clist Auto	AGAINST DE	PARTMEN	r/PROCESS Water Je	. []	Facinossins
Part No				Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	-1	od. Eng. Coor ore/Packaging Supplie		Engineering Quality Other		
				ı				i		:	l Cian 0	T		
Root Cause		Date	Step	Qty		ption of work order update or Non-conformance		nitial iief Eng	Acti Descr	ion iption	Sign & Date	Verification	on	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved		Date	3 (c)	- Control of the cont										·
					 		AUL	T CATE	GORY					
Landi		Gear Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspection Ripples in Torque W	Crimped t 1 Strip in Bend	Tube		General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes Drawing		Instruct Mainte Mislabe Misread Offset	ion Incomplete tions Incomplete/U enance eled	Jnclear	Ovalized Over/Unde Part Incorr Part Lost/N Part Move Positioned Power Loss	Missing d Wrong		Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

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Work Ord	ier ID 72716 st 09, 2011: 3:13:28 PM	1						and the second of the second	Page
Item ID: Revision ID:	D212-664-101		A	ccept				Setup Start	1 18811101 BIRIO 181 1101 188
Item Name: Start Date: Required Date Reference:		Qty: 1.00 Qty: 1.00			Cust Ito			Stop) 1669/101 8J8/9 8J8 778/108
Approvals:	Process Plan: U	MV Da	\	Tooling:		Date:		Run Start Stop	
Sequence ID/ Work Center I	Operati ID Descrip			Set Up/ Rûn Hours	Tool	D Tool#	Plan Acce Code Qty		Reject Insp. Number Stamp
Draw Nbr D212-664-14	Revision Nb Rev D (DEO)		:.			\$			
DC Document Control		ENT CONTROL Memo Photocopy bluefile	and create labels as per	0.00 0.00 r PPP D212-664-101	CHG005 S	ulosiz	4 \$	for C	L 11-8-2
Packaging Packaging	Pick Kit Packaging	s Memo		0.00	Sport S		P	11-8	
***		. •	**	7 (

CNC Bend 2

BENDING MACHINE - CROSSTUBES

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

11504 101 491716

P-11-8-10

Dart Aerospace Ltd **WORK ORDER CHANGES** W/O: Approval Approval DATE **STEP PROCEDURE CHANGE** Qty By Date Chief Eng / QC inspector Prod Mgr Part No: PAR #: _____ Fault Category: _____ NCR: Yes No DQA: ___ Date: _ Resolution: ____ ______ Disposition: _____ QA: N/C Closed: _____ Date: ____ WORK ORDER NON-CONFORMANCE (NCR) NCR: **Corrective Action** Section B **Description of NC** Verification STEP **Approval Approval** DATE Sign & **Action Description** Initial Section A QC Inspector Section C Chief Eng Chief Eng Date Chief Eng

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D212-664-101

. Accept



Revision ID:

Item Name:

Crosstube Fwd

Start Date: 8/9/2011 Required Date: 8/19/2011 Start Qty: 1.00 Req'd Qty: 1.00



Cust Item ID: Customer:

Tool ID

Reference:

ΑĐ	Dro)Va	ls:

Process Plan: Date: Tooling:

Date: Date:

Tool # Plan

Code

Run



Number Stamp

Insp.

Stop

Reject

Reject

Oty

Sequence ID/ Work Center ID

130



Quality Control

Operation Description

QC15- Crosstube Dimensional Check

Memo

QC: _____ Date:

Set Up/ **Run Hours**

SPC (Y/N):

0.00

Duloslio



Accept

. Qty

140



Crosstubes

Memo

Crosstubes

0.00

0.00

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549, using drill table DT8577, set-up towers in hole #7 as per QSI 10

2-Ream hole to finish size in tube as per Dwg D212-664-141using drill Jig .DT8550 & DT8551.Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

11.08-15

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N/O:			WO	RK ORDER CHA	NGES					
DATE	STEP	PR	OCEDURE CHAN	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspecto
										*
Part No		PAR #:								
	Reso	lution:	Disposition);	QA	: NC C	losed:		Date: _	
NCR:			WORK ORDE	R NON-CONFOR	RMANCI	E (NC	R)	······································		
DATE	STEP	Description of NC			Section B		Verifi	cation	Approval	Approve
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Work Order ID 72716

Tuesday, August 09, 2011 3:13:28 PM



Page 3

Item ID:

D212-664-101

Accept



Setup Start

Stop



Revision ID:

Item Name: Crosstube Fwd

Start Date:

8/9/2011 Required Date: 8/19/2011 Start Oty: 1.00

Req'd Qty: 1.00



Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Run Start

Stop

Sequence ID/

Work Center ID

150

HandFXtube

Hand Finishing Crosstubes

Operation Description

Crosstubes Chemical Conversion

Memo

Memo

QC: ____ Date:

Set Up/ **Run Hours**

SPC (Y/N):

0.00

Tool ID

Tool # Plan Code

Date:

Accept Qty

Reject Qty

Reject Insp.

Number Stamp

0.00

Chemical Conversion Coat within 24 hours of bending and drilling

SAD 11-08-16

160

QC

Quality Control

QC5- Inspect part completeness to step on W/O

8 ulosli6

170

Outsource2

Outsource process - NDT

Outsource process - NDT per QSI038 4.1

0.00

Memo

0.00

Liquid Penetrant Inspection as per QSI 038 Issue P/O: 14697

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

CX 11/03/17 0

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W/O:			WC	RK ORDER CHANG	ES				* * * * * * * * * * * * * * * * * * * *	
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector	
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Part No	art No: PAR #: Fault Category:				_ NCR: Yes	No DC	A:	Date: _		
	R	esolution:	1;	QA: N/C Closed: Date:						
NCR: *			WORK ORDI	ER NON-CONFORMA	NCE (NC	R)				
DATE	STEP	Description of NC	Description of NC Corrective Action			Verif	cation	Approval	Approval	
	J	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	& Sec	tion C	Chief Eng	QC Inspector	
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		<u> </u>								

Work Order ID 72716

Tuesday, August 09, 2011 3:13:28 PM



Page 4

Item ID:

D212-664-101

Accept



Setup Start

Stop



Revision ID:

Item Name: Crosstube Fwd

Start Date: 8/9/2011 Required Date: 8/19/2011

Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID: Customer:

Tool ID

Reference:

Approvals:

Process Plan: Date: Tooling:

Tool # Plan

Code

Start

Reject

Qty

Run

Number Stamp

QC: _____ Date: ____

SPC (Y/N):

Set Up/

Run Hours

Date:

Stop

Insp.

Sequence ID/ Work Center ID

180

Packaging **Packaging**

Operation Description

Receive & Inspect for Damage & Mat'l Certs

QC5- Inspect part completeness to step on W/O

Packaging

0.00

0.00

Ensure copy of NDT results attached to work order.

190

Quality Control

Memo

0.00

0.00

Inspect for damage & ensure results are as per Dwg D212-664-141

Accept

Qty

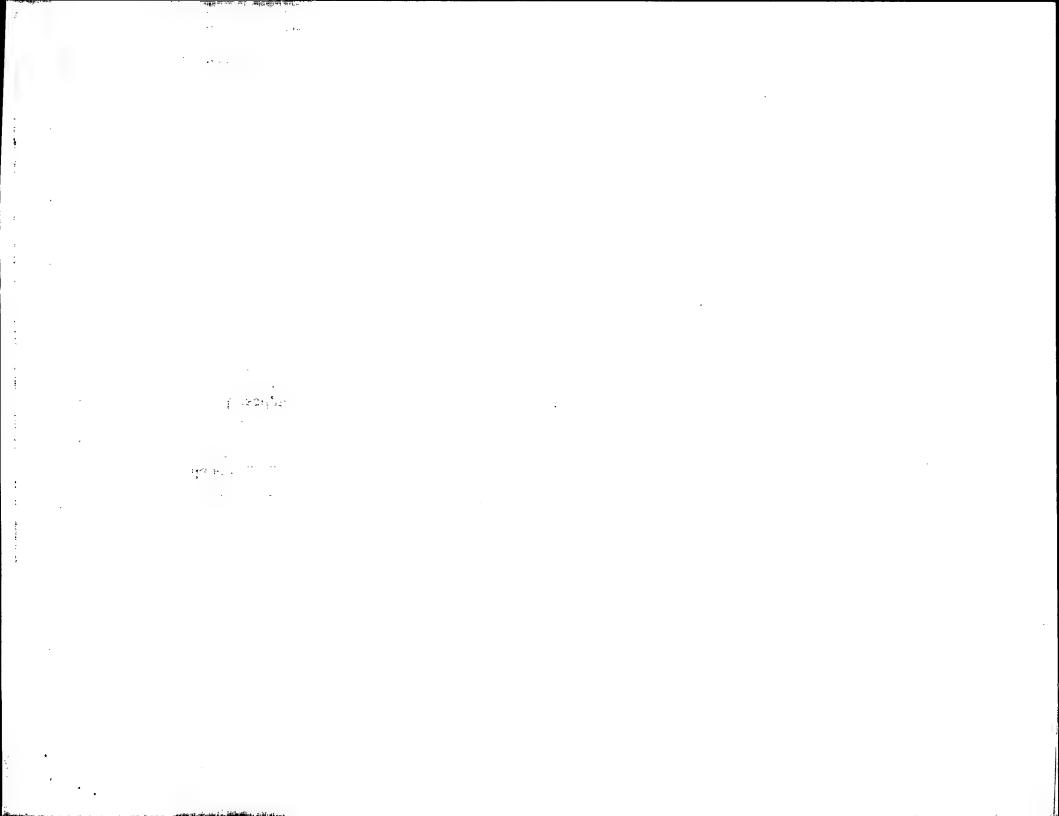
CL 11/08/17 0

Reject

34 11-08-17

	Dart	Aeros	pace	Ltd
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W/O:			W	ORK ORDER CHANG	ES		· · · · · · · · · · · · · · · · · · ·			• •
DATE	STEP	PR		EDURE CHANGE By				Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
										•
Part No	:	PAR #:	Fault Cate	gory:	_ NCI	R: Yes I	No DQ	A:	Date: _	
	Resolution: Disposition: Q				_ QA:	N/C Clo	sed:		Date: _	
NCR:	•	٠,	WORK ORD	ER NON-CONFORM	ANCE	(NCR)		· · · · · · · · · · · · · · · · · · ·		11.00
DATE	STEP	Description of NC	Description of NC Corrective Action Section A Initial Action Descrip			Section B Verifi			Approval	Approval
		Section A	Chief Eng	Action Description Chief Eng		Sign & Date	Secti	on C	Chief Eng	QC Inspector
		•		•	•					
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Work Order ID 72716

Tuesday, August 09, 2011 3:13:28 PM



Page 5

Item ID:

D212-664-101

Accept

Setup Start



Revision ID:

Item Name: Crosstube Fwd

Required Date: 8/19/2011

Start Date:

8/9/2011

Start Qty: 1.00

Req'd Qty: 1.00



Cust Item ID: **Customer:**

Tool ID

Reference:

Approvals:

Process Plan:

QC: _____ Date: ____ SPC (Y/N):

Date:

Tooling:

Set Up/

0.00

0.00

Run Hours

Date:

Date:

Run Start

Stop

Stop

Sequence ID/ Work Center ID

200

SprayPaint Spray Painting Operation Description

Spray Painting per QSI005 4.2

SprayPaint

1-Prime inside and outside crosstube as per OSI 005 4.2

2-Paint outside crosstube as per DEO D212-667-141 with White Imron as per QSI 005 4.2

PRIME:

11-08-19 Start Time:

PAINT:

Start Time:___ Finish Time:_

210

QC

Quality Control

QC14- Inspect Spray Paint

0.00

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

Tool # Plan

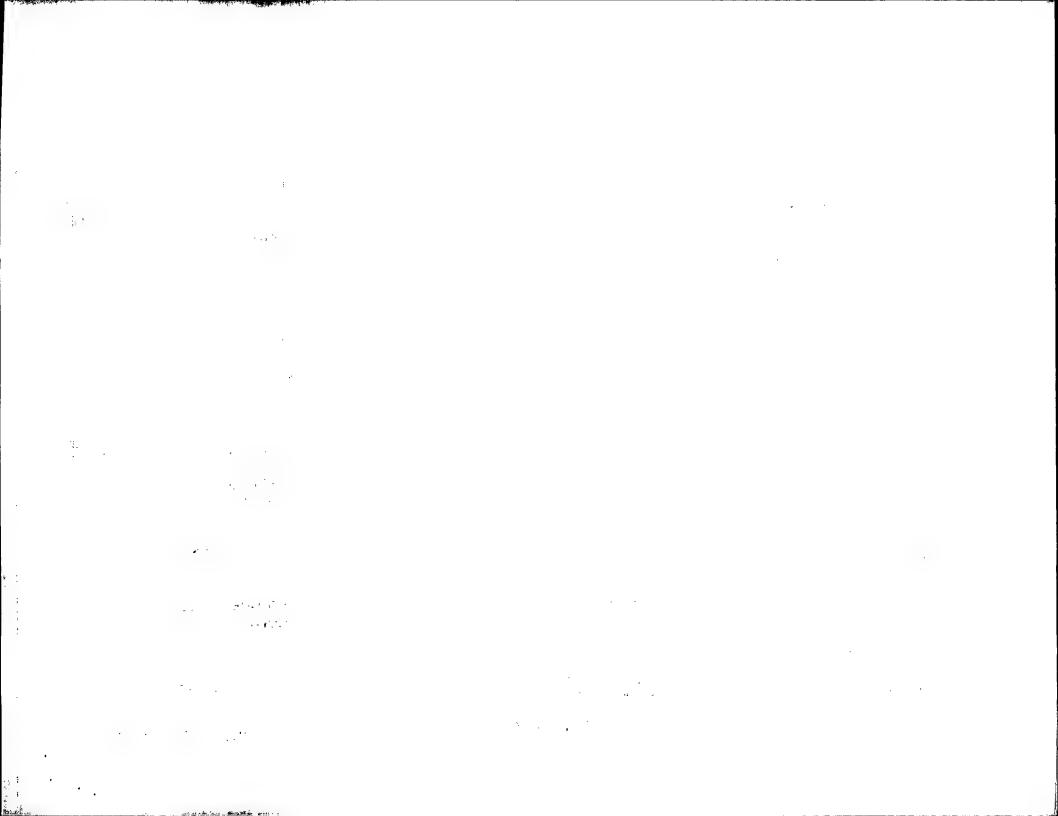
Accept Qty Code

Reject Qty

Reject

Insp. Number Stamp

T 1(-08-21



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W/O:	-		W	ORK ORDER CHANGE	ES	· · · · · · · · · · · · · · · · · · ·			•
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Part No		PAR #:							
	R	esolution:	Dispositi	on:	QA: N/C	Closed:		Date: _	· · · · · · · · · · · · · · · · · · ·
NCR:	-	V	VORK OR	DER NON-CONFORMA	NCE (NC	R)			
DATE	STEP	Description of NC		Corrective Action Section		Ve	erification	Approval	Approval
DAIL	O.L.	Section A	Initial Chief Eng	Action Description Chief Eng	Sigr Da	1 &	Section C	Chief Eng	QC Inspector
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Work Orde Tuesday, August								yer manusi ku aranjumiy ay			Page 6
Revision ID:	D212-664-10			Accept					Setup	Start Stop	
Start Date: Required Date: Reference:	8/9/2011 8/19/2011	Start Qty: 1.00 Req'd Qty: 1.00			Cust Item I Customer:	D:					
Approvals:		nn:				ate:				Start Stop	
Sequence ID/ Work Center II 220 Crosstubes Crosstubes)	clean the area 2-Install supp A/R Pros	ating surfaces of support at a with 4105S wash 'n' wip ports with Proseal 890 per eal 890 Batch: 178 ilts as per dwg	DSI9563 and QSI 015	Tool ID	Tool#	Plan Code	Accept Qty	Reje Qty	N	teject Insp. lumber Stamp
230 QC Quality Control		QC6- Inspect dimensions Memo	to drawing	0.00	loslay			4	· Andrew States	·· ··· .	
240 Packaging		Pick Kit Memo		0.00				11/1	1/2	_ &/	

240

Packaging

Packaging

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W/O:			WORK ORDER CHANGES							
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector	
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Part No	:	PAR #:	Fault Cat	egory:	NCR: Yes	No DQ	A:	Date: _	,	
Resolution: Disposition:										
NCR:			WORK ORE	DER NON-CONFORMA	NCE (NCF	₹)				
DATE	STEP	Description of NC	Corrective Action Section B			Verifica		Approval	Approval	
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Tuesday, August 09, 2011 3:13:28 PM



Page 7

Item ID:

D212-664-101

Accept

Setup Start

Stop



Revision ID: Item Name:

Start Date:

Crosstube Fwd

8/9/2011

Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID: **Customer:**

Reference:

Approvals:

Process Plan:

Date: _____

Tooling:

Date:

Run Start

Required Date: 8/19/2011

Date: _____

SPC (Y/N):

Set Up/

Run Hours

Date:

Tool ID

Tool # Plan

Code

Accept

Reject Qty

Stop

Insp.

Work Center ID

250

Sequence ID/

Quality Control

Operation Description

QC4-100% Inspect kits for completeness

Oty

Reject

Number Stamp

260

Packaging Packaging

Packaging

Memo

Memo

0.00

0.00

Identify and pack for shipping as per PPP D212-664-101

270

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

Dart Aerospace Li

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W/O:			WC	RK ORDER CHANG	ES	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		•
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date C	Approva Chief Eng / Prod Mgr	Approval QC inspector
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Part No		PAR #:						
[HE	esolution:					Date:	
NCR:				ER NON-CONFORM)		
DATE	STEP	Description of NC	Initial		ion B	Verificat		
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Picklist Print

Tuesday, August 09, 2011 3:13:22 PM

Work Order ID: 72716

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd



Start Date: 8/9/2011

Required Date: 8/19/2011

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C

JLM

IPP Rev:H

11.04.26 inspection strip ecn 11-549 EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-101TRN		Manufactured	No	, , , ,	V 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	110	Each	2.0000		SA		11-03	°-09
					72038 72040	Loc	<u>Oty</u> 2 i	Loc Code 7164	 -	(i)	- - ^		
D3595-063-450 RUBBER CUSHION		Manufactured	No			230	Each	78.5600	4	4.210526	5 N	<u> </u>	38·Q
				Location		Loc	Otv	Loc Code					

Loc Oty	Loc Code	
78.56		
3		
6		
0.56		
69		
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W/O:			W	ORK ORDER CHANGE	:S	// // / / // // // // // // // // // //			· · · ·
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
								•	•
									
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	A:	Date: _	
	Re		ion: Disposition: QA: N/C Close					Date: _	
NCR:		,	WORK ORD	ER NON-CONFORMA	NCE (NCF	t)			
DATE	STEP	Description of NC	Initial	Corrective Action Section Action Description		Sign & Verification		Approval	Approval
		Section A	Chief Eng	Chief Eng	Date	Sect	ion C	Chief Eng	QC Inspector
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Dart Aerosp	pace Ltd
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W/O:			W	ORK ORDER CHANG	iES					· · · · · · · · · · · · · · · · · · ·
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approvai QC inspector
Part No		PAR #:								
r	Re	solution:							Date: _	
NCR:		·	WORK ORE	ER NON-CONFORM	ANCE	(NCR)				
DATE	STEP	Description of NC	Corrective Action Section B			Verit		cation Approval		Approval
DAIL	J.E.	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Section C		Chief Eng	QC Inspector
		•								

H:\fORMS\Quality\Assurance\approved QA\NCRWO RevE

Tuesday, August 09, 2011 3:13:23 PM

Work Order ID: 72716

Parent Item:

D212-664-101

Parent Item Name: Crosstube Fwd



AN6-36A

MS21042L6

Washer



Purchased

Purchased

No

240

Each

87.0000

Loc Code

Start Qty: 1.00

Start Date: 8/9/2011

Required Date: 8/19/2011

Required Qty: 1.00

Location ST343 No

Location

117677

118078

118384

ST300

117441 118012 118422 240

17 20 50 Each

87

Loc Oty

342.0000



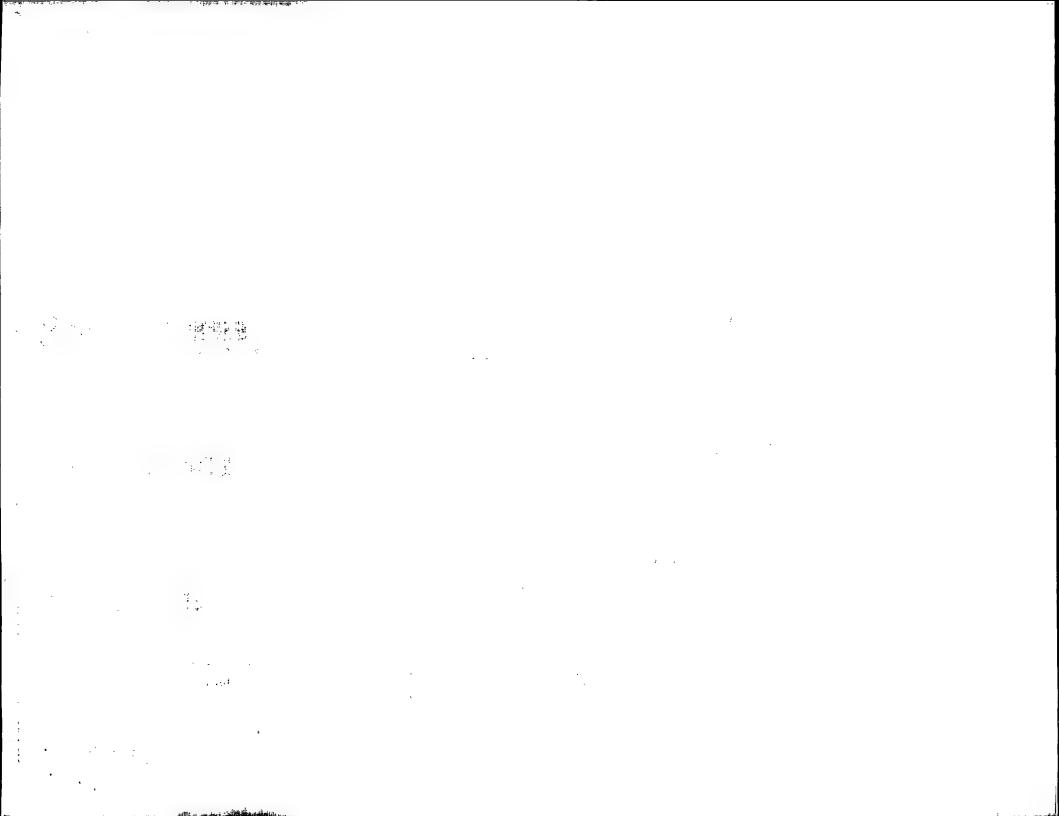
Loc Code

AN960JD616 NAS1149D0663J Purchased

No

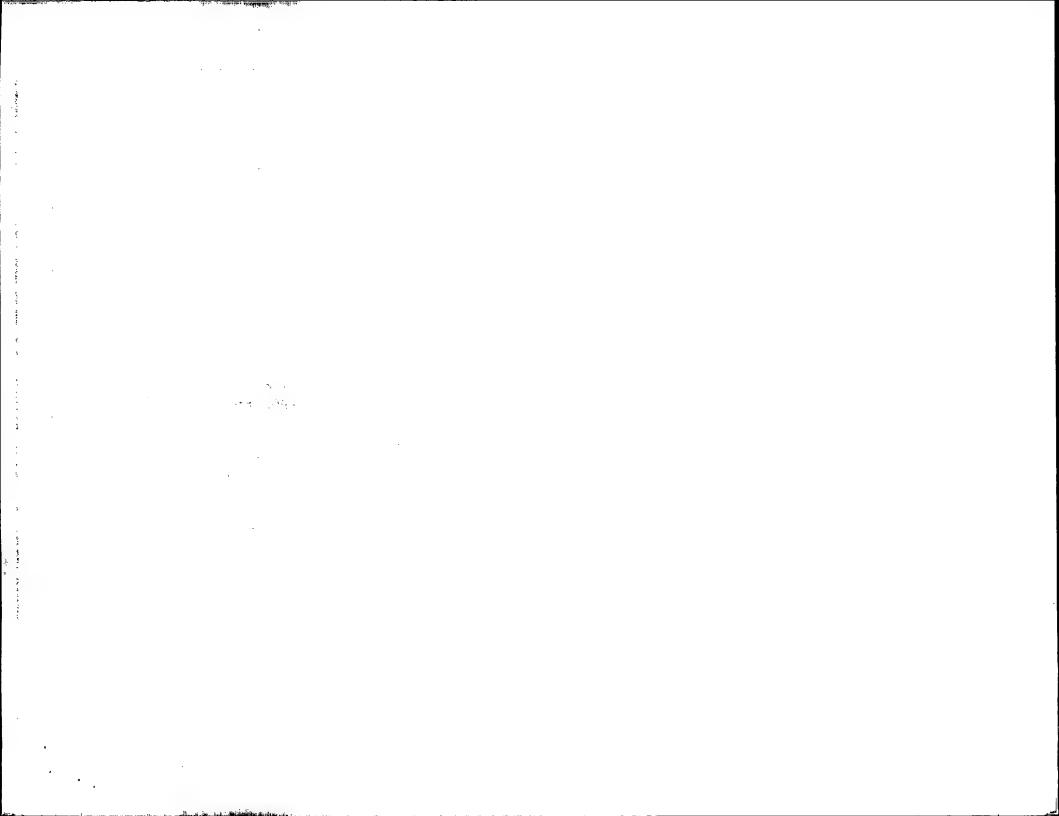
Loc Oty 342 200 42 100 240 Each

0.0000



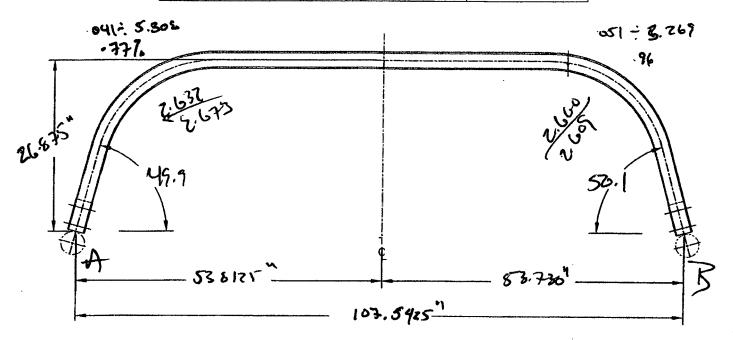
Dart Aerospace Ltd

									*	•
W/O:			W	ORK ORDER CHANG	ES			**********		•
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
										•
Part No		PAR #:								
	R	esolution:	Disposition	on:	_ QA:	N/C Clo	sed:		Date: _	
NCR:		•	WORK ORD	DER NON-CONFORMA	ANCE	(NCR)				
DATE	OTED	Description of NC			Section B			ation	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Secti		Chief Eng	QC Inspector
						·				
1	1		1		ŧ		1		1	1



DART AEROSPACE LTD	Work Order:	727.16 .
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: D		Page 1 of 1

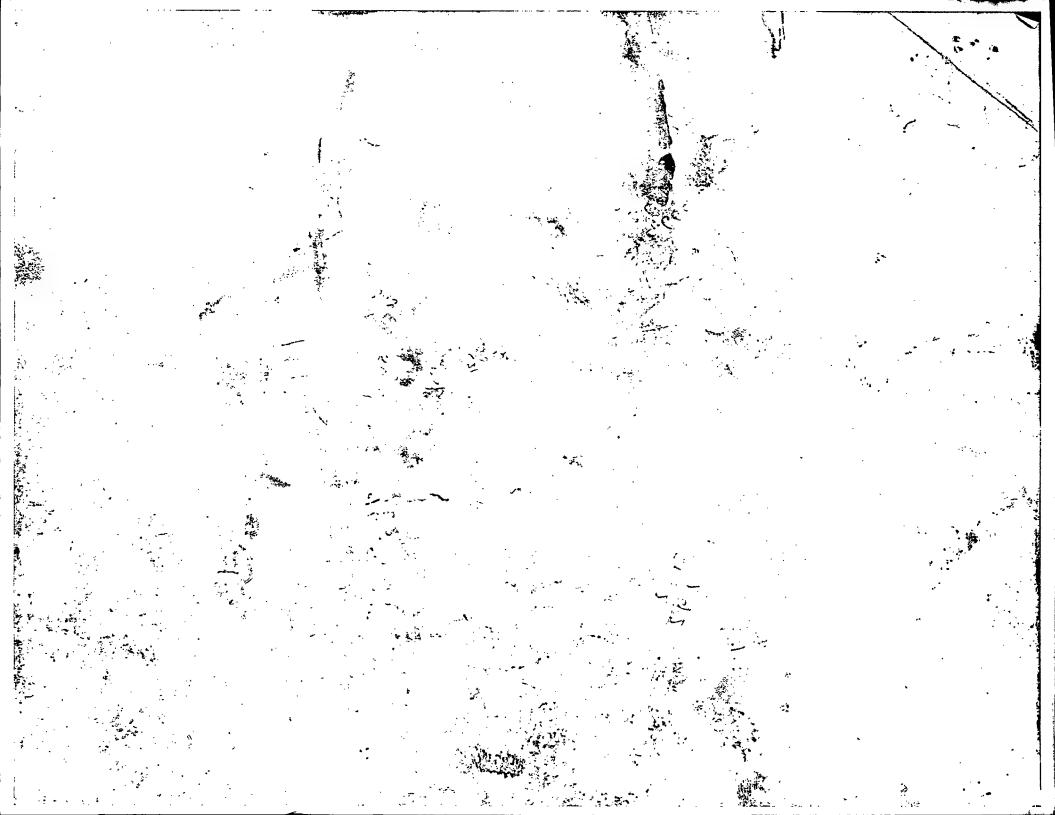
Required Dimension	Min	Max	
Height	26.79	27.05	
1/2 Span	53.59	53.85	
Angle	49	52	
Total Span	107.18	107.7	



DR	4	0.7%	crust	NIN	· 🔎	& PAyes.
, De	B	0.9%	CAL	hu	Ø	7 Passes.

1	QC15 Inspection	\sim	
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Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	
С	10.04.01	Dwg Rev updated	KJ	



item	Qty -141	Qty -141B	Part Number	Description
1	Х	<u></u>	D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	4 2 2		D2893-1	SUPPORT
5	5 4 4		D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128 FINISHED LENGTH = 126,514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- 6) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
 - D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



REMOVED FROM WHOSE REVIEW PER UNDER REVIEW SCHIHL-GIA

D	REORG TO CUP REMOV & 86-3);	MAT/REVISE O ANIZED VIEW: RENT STAND: ED REF & ADD RELOCATED TURNING DE: 4	RF	09.09.30		
С	REMOVE -851 ABRASION STRIP: ADD MAGNOBOND 6398. CUSHION, REVERSE CLAMPS			PH	07.03.08	
В.	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES			PН	05.02.04	
Α	NEW IS	SSUE		РН	00.12.12	
REV.			DESCRIPTION	BY	DATE	
DESIGN PH		PH	DART AEROSP	ACE	LTD	
DRAWN RF		RF	HAWKESBURY, ONTARIO, CANADA			
CHECKED		97	DRAWING NO.		REV. D	
MFG, APPR,		72	D212-664-141	s	HEET 1 OF 4	
APPROVED 10		10	TITLE	LE SCAL		
DE APPR.		_#_	XTUBE ASS'Y (205/212/412 HI FWD) NTS			
DATE 09.09.30 PROCESSING PROPERTY OF THE CONTROL OF						

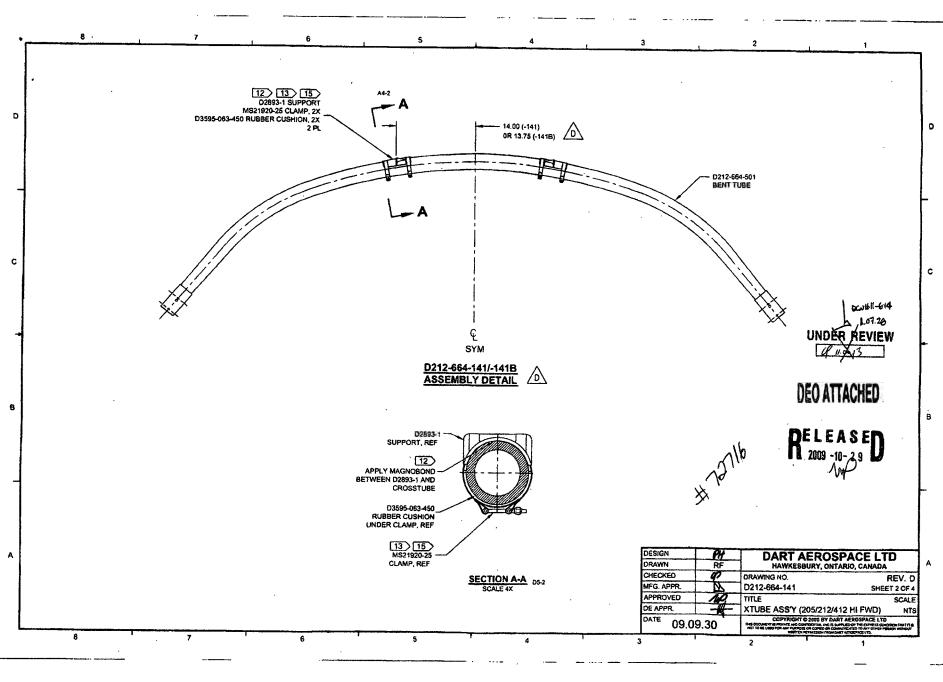
PAINT OUTSIDE PER DART QSI 005 4.2

D

W/O:			W	ORK ORDER CHANG	ES				
DATE	STEP	PRO	CEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
									•
		·							
									
Part No:		PAR #:	_ Fault Ca	tegory:	_ NCR: Yes	No DQ	A:	Date: _	
	R	esolution:	_ Disposit	lon:	_ QA: N/C Cld	sed:		Date: _	
NCR:		W	ORK OR	DER NON-CONFORMA	NCE (NCR)			
DATE	STEP	Description of NC	Initial	Corrective Action Section Description	on B Sign &	Verifi	cation	Approval	Approval
		Section A	Chief Eng	Chief Eng	Date	Sect	lion C	Chief Eng	QC inspector
									-
		,							
-									

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NOTE: Date & initial all entries

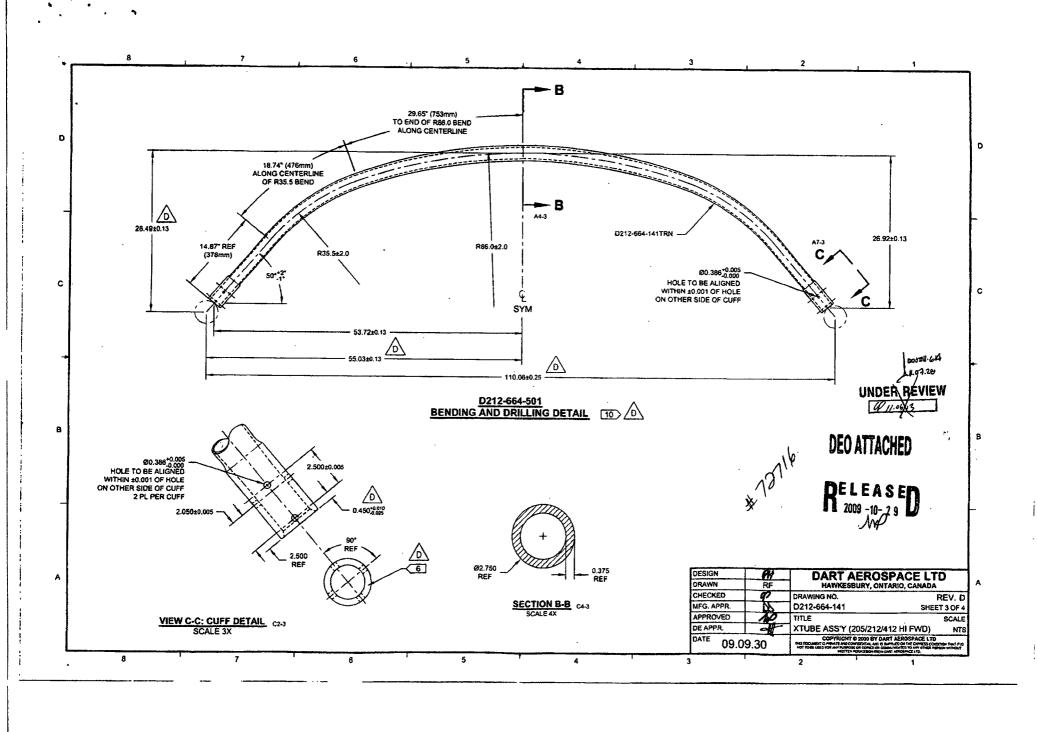


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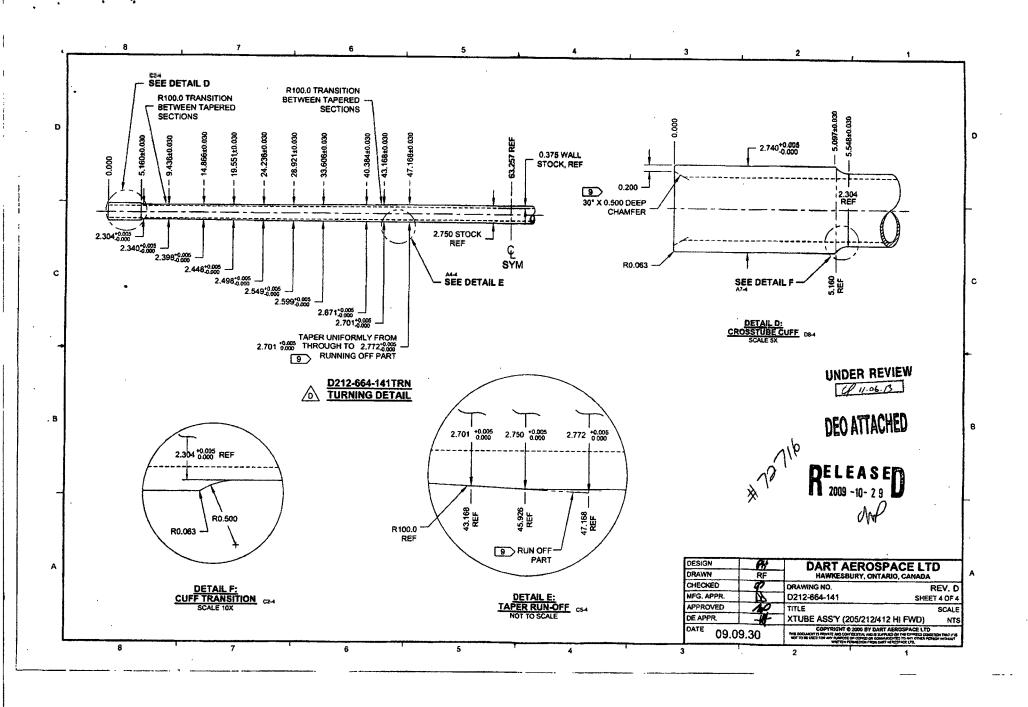
W/O:			W	ORK ORDER CHANG	ES		***************************************	•	
DATE	STEP	PRO	PROCEDURE CHANGE By Date					Approval Chief Eng / Prod Mgr	Approval QC inspector
									•
Part No		PAR #:							
***	Re	solution:						Date: _	****
NCR:			WORK ORD	ER NON-CONFORMA	ANCE (NC	R)			
DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Sect Action Description Chief Eng	ion B Sign Date	& Secti	cation on C	Approval Chief Eng	Approval QC Inspector
			-						
	-								
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NOTE: Date & initial all entries





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DRAWING NO.	TITLE		REV. D	DART AE	ROSPACE LTD	D.E.O. NO.		SHEE	T NO.	SCALE
D212-664-141	XTUBE ASS	Y (205/212/412 HI	FWD)		ERING ORDER	D212-664	-141 <u>-</u> D-1	SHEET	1 OF 2	NTS
DRAWN		CHECKED (P	MFG. APPR.	R	APPROVED	MP.	DE APPR.	_#	
DATE 11.04	.07	DATE !	· 0 ¹ / ₂ , 1)	DATE	51.70.12	DATE	1/04/12	DATE	11.04.12	_

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2

REMOVE MASKING AND APPLY CLEAR COAT

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

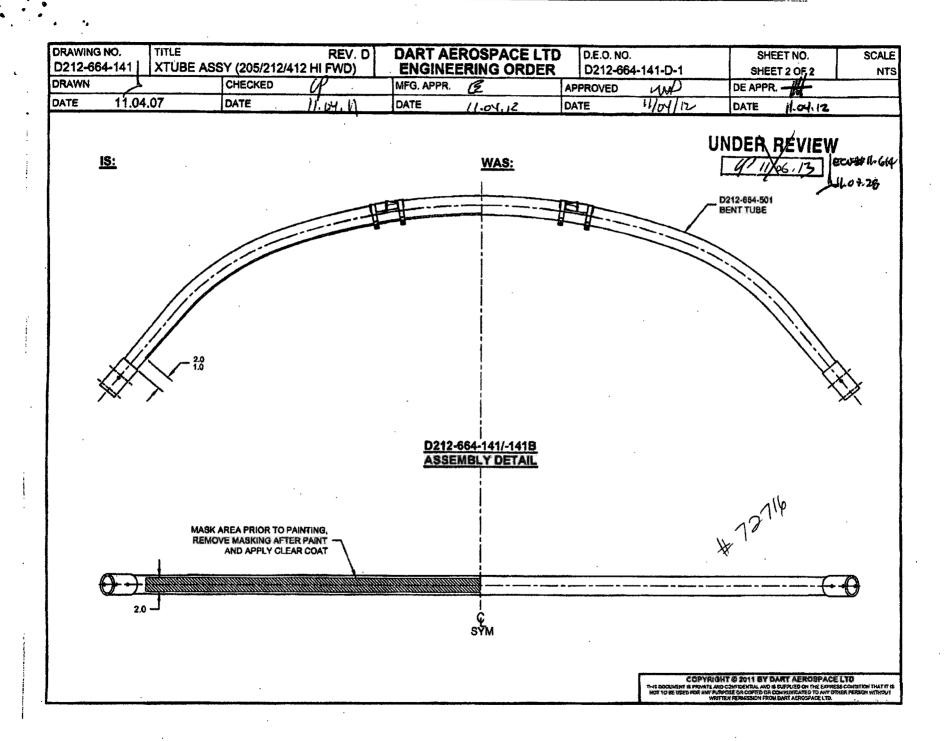
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

PELEASED 2011 -04- 18

UNDER REVIEW

*12716



DRAWING NO.	TITLE REV. D			SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)	ENGINEERING ORDE	R D212-664-141-D-2	SHEET 1 OF 1	NTS
DRAWN //	CHECKED A>S	MFG. APPR.	APPROVED W	DE APPR.	
DATE 11.07	15 DATE /1.07.20	DATE 11.07.21	DATE 11/07/2)	DATE 11.07.2	1

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

`ltem	Qty -141	Qty -141B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
				ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

19.

- 12) TO INSTALL D2893-1, SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04° TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

item	-101	-201	-203	Part Number	Description
	x			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		x		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			х	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K, HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4		<u> </u>	AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18		•	AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4	 	* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32	ļ		2	* D3595-063-570	RUBBER CUSHION CLAMP
33			4	* MS21920-28	
34 35	ļ	ļ	4	* MS21920-30	CLAMP (OR MS21042-32)
	 		2	AN6-40A	BOLT
<u>36</u> 37	ļ		6	AN6-41A MS21042L6	NUT (OR MS21042-6)
38	 -		18	MS21042L6 AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1	I	D3428-1	PLACARD

^{*}REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA SKIDTUBES.

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Revision: F

Date: 08.09.05



LIQUID PENETRANT TEST REPORT

P- 05100

1COILES		, . .
	- A	PAGE OFOF
LIENT	DART AFROSPACE	DATE AUGUST 17th 2011 TIME AM DE PM DE
TTENTION	LINDA LACFILE	ACUREN JOB NO. 158 > 1/ - 02343
DDRESS		PO/WO No. /4643-
	1270 ABERDEEN RD	WORK LOCATION ShoP
	HAWKES BURY, ONT	ACCEPTANCE STD. ASTHULITA (OCT-03) REV./DATE 2005
ROJECT	PT WET FLUORESCENT AN	8 CROSSTUBES.
EM(S) EXAMINED		
	8 CROSSTUBES AS LISTE	D BELOW
OB DESCRIPTION		
'ART NO.	LISTED BELOW >	MATERIAL ALODIAGE ALLUMINIUM THICKNESS
COPE PER	FORMED A WET FLUORESCENT L.F	
	FACE ON ALL ETEMS LISTE	•
EST DETAILS		
1ETHOD	O'FLUORESCENT O VISIBLE	WATER WASH SOLVENT REMOVABLE POST EMULSIFIED
AMILY BRAND	MAGNAFIUX	BLACK LIGHT S/N /3778 OUTPUT > 1000% W/CM2 AMBIENT < 2 fc
'ENETRANT	ZL-67 MINIMUM DWELL TIME 30 18 MIN	
ENETRANT REMOV	FER ALO MINIMUM DRY TIME >10 MIN KD 5.2 MINIMUM DWELL TIME 10 MIN	OTHER LIGHT METER S/N //A CAL DUE DATE AUC/30/2011
PEVELOPER TYPE	☐ NON AQUEOUS ☐ DRY	3.77 SALESCE SALE . 1007.09.2011
EST SURFACE		
URFACE CONDITIO		☐ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL
	TURE Q <-4°C/20°F TO 10°C/50	9°F
RESULTS-	(METRIC IMPERIAL)	
	The same of the sa	
<u> </u>	71753	TEM D407-667-105
2 W.O	71749	1 × 2 × 072/2-664-101
3 W.C	7/750	3 0212-664-101
4 10.0	72761	4 2212-664-101
5 W.D	72760/	DL17-10104-101
· 6 W.O	727161	
7 W.D	72679'	6 D212 664-101
8 W.O	726781	2 P212-664-101
	and the second s	8 D212-664-101
NO RELIE	JANT INDICATIONS DEFECTED	
	TIME OF INSPECTION	PT 11-08-12
TI. LHE	T (NE OF INSPECTION	
cope of Services		
The agreement of Acuren G		ler no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood
spresentations or warranti	ies. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the	, bosed on information and assumptions supplied by the ownertoperator and are not intended nor can they be construed as e ownertoperator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the
tandard of Care	movided by Acuren Group Inc. In no event shall Acuren Group Inc's liability in respect	
a performing the services prophed, is made or intended		milar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or
SIGNATURES		
LIENT REPRESEN	STATIVE LON TITLEM	Flor (VI) DTR#
ECHNICIAN (SIGNA	PENT	SIGNATURE
ECHNICIAN (SIGNA	3	REVIEWED BY:
VAME (PRINT):	SERASTEN DAULT	NAME INITIALS 2** TECHNICIAN
	CGSB LEVEL SNT LEVEL CGSB L	
•	CGSB REG. NO 12959 CGSB F	EG. NO

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Ship From: Falcon Aviation

Al Bateen Airbase, Airport Road

Abu Dhabi, U.A.E. Steve McComish

Tel # 011 971 48860470

Commercial Invoice: Return F

Ship To: Dart Aerospace Ltd.

1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Canada

Tel # 1.613.632.5200 GST # RT101272607

Date: April 16, 2012

P.O. #: Return

Ship Via:Journey

FOB:

Item	Part Number / Product Description	Tariff Class.	Quantity	Unit Price		Total	
1	D212-664-101 Crosstube Batch 72716	8803.20	1	\$	6,804.00	\$	6,804.00
						\$	-
3				\$	-	\$	-
4				\$	-	\$	
5				\$	-	\$	
				\$	-	\$	•
	Parts being returned for evaluation			\$		\$	

All Prices are in US Dollars All of the above parts were made in Canada unless otherwise indicated THIS IS A CUSTOMS INVOICE ONLY

Sub Total

\$6,804.00

Total

\$6,804.00

Amount Due:

\$6,804.00

Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Canada Tel.: 1.613.632.5200

Fax: 1.613.632.1185 GST # RT101272607





Ship From: Falcon Aviation

Al Bateen Airbase, Airport Road

Abu Dhabi, U.A.E. Steve McComish Tel #011 971 48860470 Packing Slip:Return F

Ship To: Dart Aerospace Ltd.

1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Canada

Tel # 1.613.632.5200 GST # RT101272607

Date: April 16, 2012

P.O. #: Return

Ship Via: Journey

FOB:

Item	Part Number / Product Description	Qty. Ordrered	Qty. Shipped	Qty. Back Order
]	D212-664-101 Crosstube Batch 72716	1	1	0
2				
3				
4				
5				
6				
7	Parts Made in Canada being returned for evaluation			

Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7 Canada

Tel.: 1.613.632.5200 Fax: 1.613.632.1185 GST # RT101272607